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APPLICATION

Of

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For

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On

SWIMMING POOL JOINT COVER SYSTEM

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TITLE: SWIMMING POOL JOINT COVER SYSTEM

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION:

This invention relates generally to structural systems having joints between components, and more particularly to a joint cover system for covering a joint between a swimming pool and coping.

DESCRIPTION OF RELATED ART:

In a typical swimming pool construction process, a swimming pool liner is formed from gunite or shotcrete. The gunite or shotcrete is relatively porous, and a watertight layer of plaster (also called whitecoat or marcite) is formed over an interior surface of the swimming pool liner.

The upper portions of the side walls of a swimming pool liner are collectively referred to as the "bond beam," and capstone used to cover the bond beam is called "coping." The coping extends between an upper surface of the bond beam and an upper surface of a deck surrounding the swimming pool. Concrete coping with a bull nose front edge has been popular for many years. Some swimming pools have cantilever decks that extend over the bond beam. Such swimming pools with cantilever decks typically do not have coping.

The plaster layers used to finish interior surfaces of swimming pools are relatively difficult to clean and prone to staining. In addition, oil and dirt floating on the water in a swimming pool tends to accumulate on the plaster finish layer at the water level. For this reason, a row of tile is typically applied to an interior surface of the swimming pool liner at the water level. The tile provides an easily cleanable surface to catch oil and dirt, and may also provide an attractive accent to the upper edge of the swimming pool liner.

In recent years pebble finish layers have become popular alternatives to plaster finish layers in swimming pool construction. The exposed pebbles of the pebble finish layers are more durable and stain resistant than plaster finish layers, rendering the row of tile at the water level optional rather than required. Non-porous pebbles are typically selected for color, screened, and tumble-smoothed. The pebbles are mixed with a cement, and the mix is applied to the interior surface of the swimming pool liner. An outer layer of the pebbles is then exposed. After the pebble finish layer has thoroughly hardened, normally within 24 hours, it is cleaned to enhance the brightness and luster of the pebbles. One popular pebble finish layer is the Pebble Tec® finish layer (Pebble Technology, Inc., Scottsdale, AZ).

A problem arises when a swimming pool is constructed on expansive soil, and the coping or deck layer formed over the bond beam of the swimming pool is in contact with the soil. In this situation, the coping or deck layer may be lifted up and away from the bond beam during wet weather due to soil expansion. The gap between the finish layer (e.g., a pebble finish layer) and the coping or deck layer is typically filled with a flexible joint sealant. The lifting of the coping or deck layer enlarges the gap between the finish layer and the coping or deck layer, exposing the unsightly sealant layer.

Further, movement of the coping or deck layer between wet and dry weather conditions often causes the sealant to pull away from one or both surfaces. In this situation, the sealant layer must be repaired or replaced. Over the lifetime of a swimming pool the cost of repairing and/or replacing the sealant layer can become significant. It would thus be beneficial to have a cover for hiding a joint between solid bodies that tend to move relative to one another.

SUMMARY OF THE INVENTION

The present invention teaches certain benefits in construction and use which give rise to the objectives described below.

The present invention provides a joint cover system for covering a gap at a joint between a first body and a second body. The joint cover system includes a cover strip and a receiver strip. The cover strip had a first attachment portion and is adapted for spanning the joint. The receiver strip has a second attachment portion and an anchor portion. The second attachment portion is adapted to lockingly engage the first attachment portion of the cover strip, thereby mechanically coupling the cover strip to the receiver strip. The anchor portion extends from the receiver strip and is adapted for anchoring in the first body.

A primary objective of the present invention is to provide a joint cover system having advantages not taught by the prior art.

Another objective is to provide a joint cover system that is inexpensive to manufacture and easy to install.

A further objective is to provide a joint cover system that covers the joint so as to hide any shifting between the first and second bodies.

Other features and advantages of the present invention will become apparent from the following more detailed description, taken in conjunction with the accompanying drawings, which illustrate, by way of example, the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWING

The accompanying drawings illustrate the present invention. In such drawings:

FIGURE 1 is a side elevational view of the preferred embodiment of the present invention, a joint cover system positioned in a joint between a first body and a second body, the joint cover system including a cover strip and a receiver strip;

FIGURE 2 is a side elevational view of the cover strip;

FIGURE 3 is a side elevational view of the receiver strip;

FIGURE 4 is a side elevational view of the receiver strip with a protective strip engaged therein;

FIGURE 5 is a side elevational view of the protective strip;

FIGURE 6A is a perspective view of a bond beam illustrating how a ledger board is attached to the bond beam, the ledger board having a groove;

FIGURE 6B is a perspective view thereof illustrating how a face form is attached to the ledger board and how a system is inserted into a groove of the ledger board;

FIGURE 6C is a perspective view thereof illustrating how a tie wire is positioned through the face form and attached to a nail driven into the bond beam;

FIGURE 6D is a perspective view thereof illustrating how cement is poured into the bond beam and against the face form to form a coping;

FIGURE 6E is a perspective view thereof illustrating how the face form is removed;

FIGURE 6F is a side elevational view thereof illustrating how the ledger board is removed, leaving the system embedded in the coping;

FIGURE 6G is a side elevational view thereof illustrating how a pebble finish layer is added over the bond beam; and

FIGURE 6H is a side elevational view thereof illustrating how the protective strip is removed and replaced with the cover strip.

DETAILED DESCRIPTION OF THE INVENTION

Fig. 1 is a cross-sectional view of a system 20 including a joint cover system 22 positioned in a joint 24 between a first body 26 and a second body 28. The first body 26 may be, for example, a coping or deck layer formed over an upper surface of a bond beam 84 (shown in Figs. 6A-6H) of a swimming pool liner, and the second body 28 may be a pebble finish layer 100 (shown in Figs. 6A-6H) formed on an interior surface of the swimming pool liner. However, those skilled in the art will recognize that the system 20 may be adapted for use between other bodies.

In the embodiment of Fig. 1, the joint cover system 22 includes a cover strip 30 that is adapted to be mechanically coupled to a receiver strip 32. The receiver strip 32 is adapted to be anchored in the first body 26, and the cover strip 30 is adapted to span the gap between the first body 26 and the second body 28 at the joint 24. The joint cover system 22 covers the joint 24 despite dimensional changes in the gap between the first body 26 and the second body 28. Such dimensional changes may, for example, be due to relative movement between the first body 26 and the second body 28 due expansion of soil in contact with the first body 26 and/or the second body 28 during wet

weather. Such dimensional changes may also be due to expansions and contractions of the first body 26 and/or the second body 28 with changes in temperature.

While a portion of the cover strip 30 is preferably in continuous contact with the second body 28, the cover strip 30 need not be in continuous contact with the second body 28, and may only be in proximity to the second body 28 in other embodiments.

Fig. 2 is a cross-sectional view of the cover strip 30 of Fig. 1, and Fig. 3 is a cross-sectional view of the receiver strip 32. As shown in Figs. 1 and 2, the cover strip 30 includes a first attachment portion, preferably an attachment rib 64. As shown in Figs. 1 and 3, the receiver strip 32 includes a second attachment portion adapted to lockingly engage the first attachment portion of the cover strip. In the preferred embodiment, the second attachment portion is a substantially hollow body 44 that defines a slit 46 shaped to receive the attachment rib 64 of the cover strip 30. When the first attachment portion is lockingly engaged to the second attachment portion (or, more specifically, when the attachment rib 64 engages the slit 46), the cover strip 30 is mechanically coupled to the receiver strip 32.

As shown in Figs. 1 and 2, the cover strip 30 includes a body 60, a tapered covering member 62, and the attachment rib 64. The body 60 is substantially bar-shaped and has a rectangular cross section as shown in Fig. 2. The tapered covering member 62 may be attached to the body 60, and may project outwardly from an edge of the body 60. The attachment rib 64 may also be attached to the body 60, and projects outwardly from a major surface of the body 60. The attachment rib 64 may also include a barb 66, described in greater detail below.

The cover strip 30 is preferably formed from a flexible material impervious to water. Suitable flexible plastic materials include polyvinylchloride, polypropylene, and polyethylene. Other flexible materials impervious to water may also be suitable.

The body 60 has a first dimension "D1," a second dimension "D2," and a thickness "T1." In one embodiment D1 is about 0.440 in., D2 is approximately 0.180 in., and T1 is about 0.060 in. The tapered covering member 62 has a dimension "D3." In one embodiment D3 is about 0.750 in. The attachment rib 64 has a first dimension "D4," a second dimension "D5," and a thickness "T2." In one embodiment D4 is about 0.3875 in., D5 is approximately 0.1275 in., and T2 is about 0.060 in. The barb 66 of the attachment rib 64 has a dimension "D6." In one embodiment D6 is about 0.050 in.

As shown in Figs. 1 and 3, the receiver strip 32 includes an anchor portion extending from the receiver strip 32, the anchor portion being adapted for anchoring in the first body 26. In the preferred embodiment, the anchor portion is a "T"-shaped anchor rib 40 extending above the substantially hollow body 44. The anchor portion may also include a deck member 42. The substantially hollow body 44 has a slit 46 for receiving an attachment rib of the cover strip 30 of Fig. 1. A groove 48 in an interior surface 50 of the body 44 is adapted to receive the barb 66 of the attachment rib 64 of the cover strip 30. When the attachment rib 64 of the cover strip 30 of Fig. 1 is inserted into the slit 46 of the receiver strip 32 and the barb 66 of the attachment rib 64 enters the groove 48 in the interior surface 50 of the body 44 of the receiver strip 32 (see Fig. 1), the cover strip 30 is mechanically coupled to the receiver strip 32.

The receiver strip 32 is preferably formed from a flexible material impervious to water. Suitable flexible plastic materials include polyvinylchloride, polypropylene, and polyethylene. Other flexible materials impervious to water may also be suitable.

As indicated in Fig. 3, the "T"-shaped anchor rib 40 has a width dimension "D1," an upper portion of the anchor rib 40 has a thickness "T1," and the anchor rib 40 has a height dimension "D2." In one embodiment D1 is about 0.170 inch (in.), T1 is approximately 0.045 in., and D2 is about 0.3225 in. The deck member 42 has a width dimension "D3" and a thickness "T2". In one embodiment D3 is about 0.190 in. and T2 is approximately 0.050 in. The substantially hollow body 44 has a width dimension "D4," a side wall of the body 44 has a thickness "T3," the body 44 has a height dimension "D5," and upper and lower walls of the body 44 have thicknesses "T4" and "T5". In one embodiment D4 is about 0.375 in., T3 is approximately 0.080 in., D5 is about 0.355 in., and T4 and T5 are approximately 0.070 in.

Fig. 4 is a cross-sectional view of a system 70 including a protective strip 72 that is adapted to be removably coupled to the receiver strip 32. As described below, the protective strip 72 is inserted into the receiver strip 32 during construction to prevent foreign matter from entering the slit 46 of the receiver strip 32. When the protective strip 72 is mechanically coupled to the receiver strip 32, the protective strip 72 substantially covers the slit 46 of the receiver strip 32, thereby preventing foreign matter from entering the slit 46.

Fig. 5 is a cross-sectional view of the protective strip 72 of Fig. 4. The protective strip 72 includes a body 74 and an attachment rib 76 projecting outwardly from a major surface of the body 74 as shown in Fig. 5. The attachment rib 76 is dimensioned to fit in the slit 46 of the receiver strip 32 and temporarily hold the protective strip 72 in place. A stub 78 protrudes from a surface of the attachment rib 76 as shown in Fig. 5. When the stub 78 of the attachment rib 76 enters the groove 48 in the interior surface 50 of the body 44 of the receiver strip 32 of Fig. 3 (see Fig. 4), the protective strip 72 is weakly coupled to the receiver strip 32. The stub 78 is small enough to ensure that the protective strip 72 may be easily removed from the receiver strip 32. The protective strip 72 may be formed from a variety of materials, and is preferably formed from a flexible material that is impervious to water. Suitable flexible plastic materials include polyvinylchloride, polypropylene, and polyethylene.

In one embodiment, the body 74 of the protective strip 72 has a first dimension "D1" and a thickness "T1." In one embodiment D1 is about 0.375 in. and T1 is about 0.040 in. The attachment rib 76 has a first dimension "D2," a second dimension "D3," and a thickness "T2." In one embodiment D2 is about 0.200 in., D3 is approximately 0.085 in., and T2 is about 0.070 in. The stub 78 of the attachment rib 76 has a dimension "D4." In one embodiment D4 is about 0.050 in.

Figs. 6A-6G will now be used to describe a method for constructing a swimming pool that involves forming a coping or deck layer over a bond beam of a swimming pool liner such that a joint between a finish layer and the coping or deck layer is covered by the joint cover system 22 of Fig. 1. Fig. 6A is a cross-sectional view of a portion 80 of a side wall of a swimming pool liner wherein a ledger

board 82 is attached to a bond beam 84 of the side wall of the swimming pool liner. The ledger board 82 has a groove 86 dimensioned to receive the receiver strip 32 of the joint cover system 22 of Fig. 1. The ledger board 82 may be attached to the bond beam 84 by any conventional means, preferably with nails (not shown).

Fig. 6B is a cross-sectional view of the portion 80 of the side wall of the swimming pool liner of Fig. 6A following attachment of a face form 88 to the ledger board 82 (e.g., via double-sided tape), and insertion of the system 70 of Fig. 4 into the groove 86 of the ledger board 82. As mentioned above, the protective strip 72 (shown in Fig. 5) of the system 70 is inserted into the receiver strip 32 (shown in Fig. 3) during construction to prevent foreign matter from entering the slit 46 of the receiver strip 32.

Fig. 6C is a cross-sectional view of the portion 80 of the side wall of the swimming pool liner of Fig. 6B following insertion of tie wires through the face form 88 and the ledger board 82 and attachment of the tie wires to the bond beam 84. In one embodiment, nails are driven into an upper surface of the bond beam 84 at regular distances (e.g., every 14 inches), and ends of the tie wires are inserted through corresponding holes in the face form 88 and the ledger board 82 and wound around the nails. In Fig. 6C an end of a tie wire 90 extends through the face form 88 and is wound around a nail 92 driven into an upper surface of the bond beam 84.

Fig. 6D is a cross-sectional view of the portion 80 of the side wall of the swimming pool liner of Fig. 6C following the pouring of concrete to form a coping or deck layer 94 over the upper surface of the bond beam 84. After the concrete hardens the tie wires 90 are removed by twisting as

indicated in Fig. 6D. The use of tie wires is well known in the art, and is therefore not described in greater detail herein.

Fig. 6E is a cross-sectional view of the portion 80 of the side wall of the swimming pool liner of Fig. 6D following removal of the face form 88 (e.g., by pulling the face form 88 away from the bond beam 84 and down). A face 96 of the coping or deck layer 94 is preferably finished at this time.

Fig. 6F is a cross-sectional view of the portion 80 of the side wall of the swimming pool liner of Fig. 6E following removal of the ledger board 82 (e.g., by pulling the ledger board 82 straight down), and the forming of a flexible joint sealant layer 98 between the receiver strip 32 of the system 70 and the bond beam 84. The flexible joint sealant layer 98 may be, for example, a layer of caulk.

Fig. 6G is a cross-sectional view of the portion 80 of the side wall of the swimming pool liner of Fig. 6F following application of a pebble finish layer 100 to an interior surface of the side wall of the swimming pool liner.

Fig. 6H is a cross-sectional view of the portion 80 of the side wall of the swimming pool liner of Fig. 6G following removal of the protective strip 72 of the system 70 and the insertion of the cover strip 30 of the joint cover system 22 of Fig. 1 into the receiver strip 32 (e.g., using a rubber mallet). The cover strip 30 spans a gap between the coping or deck layer 94 and the pebble finish layer 100 at the joint between the coping or deck layer 94 and the pebble finish layer 100. The resulting joint cover system covers the joint despite dimensional changes in the gap between the coping or deck layer 94 and the pebble finish layer 100. Such dimensional changes may, for example, be due to

relative movement between the coping or deck layer 94 and the pebble finish layer 100 due expansion of soil in contact with the coping or deck layer 94 during wet weather.

While the invention has been described with reference to at least one preferred embodiment, it is to be clearly understood by those skilled in the art that the invention is not limited thereto. Rather, the scope of the invention is to be interpreted only in conjunction with the appended claims.